European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)

Second Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2001 to December 2006

Conservation status assessment for :

H1310: *Salicornia* and other annuals colonising mud and sand

Please note that this is a section of the report. For the complete report visit http://www.jncc.gov.uk/article17

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H1310 *Salicornia* and other annuals colonising mud and sand

Audit trail compiled and edited by JNCC and the UK statutory nature conservation agencies Coastal Lead Co-ordination Network

This paper and accompanying appendices contain background information and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the commission document "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes and Guidelines, Final Draft 5; October 2006". The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

1. National-biogeographic level information

1.1 General description and correspondence with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H1310 and its relations with UK classifications.

This pioneer saltmarsh vegetation colonises intertidal mud and sandflats in areas protected from strong wave action and is an important precursor to the development of more stable saltmarsh vegetation. It develops at the lower reaches of saltmarshes where the vegetation is frequently flooded by the tide, and can also colonise open creek sides, depressions or pans within saltmarshes, as well as disturbed areas of upper saltmarshes.

There is little variation within this habitat type, which typically comprises a small number of species. The following NVC types are represented:

SM7 *Arthrocnemum perenne* stands
SM8 Annual *Salicornia* salt-marsh community
SM9 *Suaeda maritima* salt-marsh community
SM27 Ephemeral salt-marsh vegetation with *Sagina maritima*

The first three communities include open stands of perennial glasswort *Sarcocornia perennis*, glasswort *Salicornia* spp., or annual seablite *Suaeda maritima*. The density of these plants can vary and may be lower on sites with sandier substrates. Other species that may be found include common saltmarsh-grass *Puccinellia maritima*, common cord-grass *Spartina anglica* and sea aster *Aster tripolium*. *Sarcocornia perennis* has a restricted distribution in England and Wales, and is absent from Scotland. A further form of the habitat (SM27) consists of ephemeral vegetation colonising open pans in upper saltmarshes. Characteristic plants of this vegetation type include sea pearlwort *Sagina maritima* and knotted pearlwort *S. nodosa*.

This form of saltmarsh vegetation is widely distributed throughout coastal areas of the EU. In the UK there are over 2,300 ha of Salicornia and other annuals colonising mud and sand, and it is widespread in the saltmarshes of England and Wales. However, the area of the habitat type is restricted in Scotland and Northern Ireland because of a lack of new sediment for saltmarsh development.

Table 1.1.1 Summary description of habitat H1310 and its relations with UK vegetation/habitat classifications

Classification	Correspondence with Annex I type	Comments
NVC	The following NVC types are represented: • SM7 *Arthrocnemum perenne* stands. • SM8 Annual *Salicornia* salt-marsh community. • SM9 *Suaeda maritima* salt-marsh community. • SM27 Ephemeral salt-marsh vegetation with *Sagina maritima*.	The SM7, SM8 and SM9 pioneer saltmarsh communities are not always clearly demarcated on the ground. They can occur as mosaics, or as transitions, with other pioneer communities – in particular SM6 '*Spartina anglica* saltmarsh community' and SM10 'Transitional low-marsh vegetation with *Puccinellia*, annual *Salicornia* species and *Sueda maritima*' and SM11 '*Aster tripolium* var. *discoides* saltmarsh community'. The former (SM6) is not included in the Annex 1 habitat H1320 *Spartina* swards, whilst the latter (SM10) is part of Annex 1 habitat H1330. This habitat merges into H1140 'Mudflats and sandflats not covered by seawater at low tide' on its seaward side, and into H1330 'Atlantic salt meadows' on its landward side.
BAP priority habitat type	Coastal saltmarsh.	The BAP priority habitat is broader than H1310 as it encompasses all saltmarsh types.
EU Interpretation Manual	Formations composed mostly or predominantly of annuals, in particular Chenopodiaceae of the genus *Salicornia* or grasses, colonising periodically inundated muds and sands of marine or interior salt marshes. *Thero-Salicornietea*, *Frankenietea pulverulentae*, *Saginetea maritimae*. Sub-types 15.11 - Glasswort swards (*Thero-Salicornietalia*): annual glasswort (*Salicornia* spp., *Microcnemum coralloides*), seablite (*Suaeda maritima*), or sometimes salwort (*Salsola* spp.) formations colonising periodically inundated muds of coastal saltmarshes and inland salt-basins. 15.13 - Atlantic sea-pearlwort communities (*Saginion maritimae*): formations of annual pioneers occupying sands subject to variable salinity and humidity, on the coasts, in dune systems and saltmarshes. They are usually limited to small areas and best developed in the zone of contact between dune and saltmarsh.	
CSM reporting categories	Saltmarsh • Coastal saltmarsh (NI) • Littoral sediment (E) • Saltmarsh (S)	CSM reporting category covers the whole range of saltmarsh zones. The H1310 habitat usually occupies a smaller area of this reporting category than does the H1330 'Atlantic salt meadows' habitat.

Saltmarsh Survey of Great Britain (Nature Conservancy Council 1989)	Community 2a – Salicornia/Sueda	Although the two classification systems are not directly comparable, for this pioneer vegetation there is a close correspondence between H1310 and the community 2a.
Maplin Sands Survey (Institute of Terrestrial Ecology 1974)	Communities Sa, Sa.a	There is a close correspondence between the ITE communities for *Salicornia* & *Sueda*-dominated pioneer marsh and the H1310 habitat.

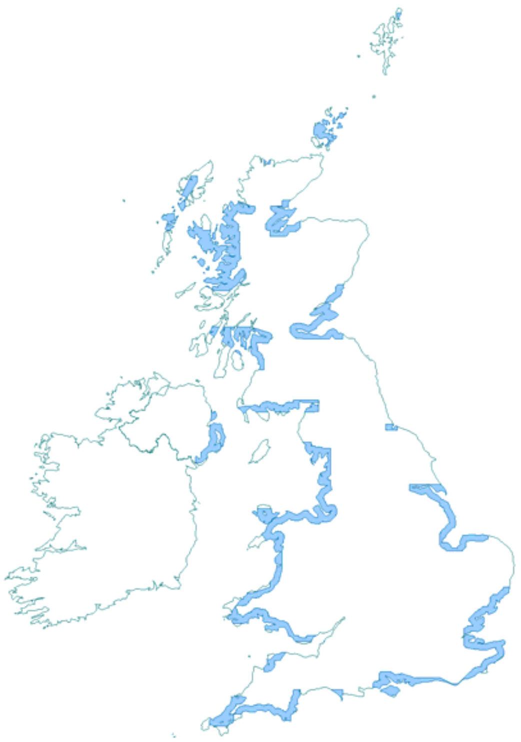
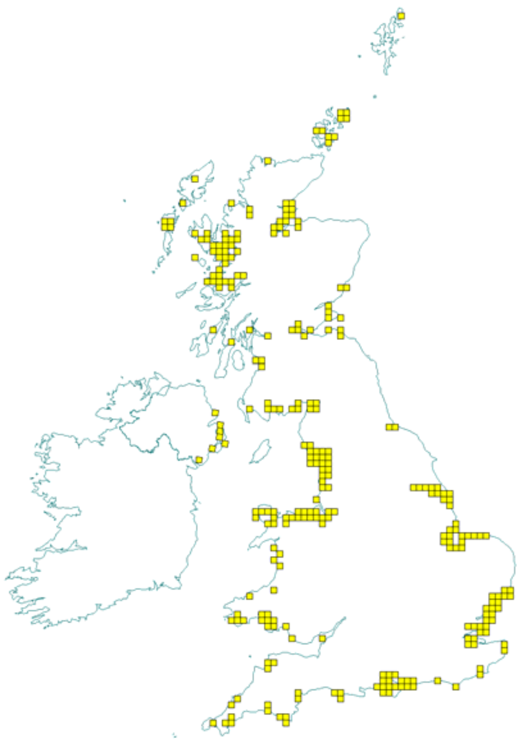
2. Range [2.3]

2.1 Current range

Range surface area [2.3.1]: **3,514 km²**
Date calculated [2.3.2]: **May 2007**
Quality of data [2.3.3]: **Moderate**

The surface area estimate was calculated within alpha hull software, using extent of occurrence as a proxy measure for range (see Map 2.1.1). The value of alpha was set at 25 km; the alpha hull software used to calculate the surface area of the range could only be clipped to a 10km strip width along the coast. The geomorphological and physical factors influencing the distribution of the habitats are likely to occur only within a far smaller distance of the coastline (at most 1km) and hence the area value has been reduced by a factor of 10 to give a more realistic value for the surface area of the range for these habitats.

Maps 2.1.1 and 2.1.2 show the range and distribution of H1310 in the UK. The map shows records for NVC communities SM7, SM8 and SM9 from NVC data and Cooper *et al*. (1992) and community 2a *Salicornia*/*Suaeda* saltmarsh from Burd (1989), together with Special Areas of Conservation (SACs) supporting this Annex I type. SM7 '*Anthrocnemum perenne* stands' has a much more restricted distribution than either SM8 and SM9. It is restricted to the south and east coasts of England (as far north as The Wash) and a small area on the west coast of Wales. The SM7 community is restricted by the restricted distribution of its dominant species *Anthrocnemum perenne*. It is sufficiently restricted to be classified as a 'Nationally scarce plant' in Britain (Stewart *et al.* 1994). There is little geographical variation in these vegetation communities around the UK coast.

Map 2.1.1 Habitat range map [1.1] for H1310	**Map 2.1.2** Habitat distribution map [1.2] for H1310
	
Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical note I for details of methodology).	Each yellow square represents a 10x10km square of the National Grid and shows the known and/or predicted occurrence of this habitat. 10-km square count: 271

See Section 7.1 for map data sources

2.2 Trend in range since c.1994

Trend in range [2.3.4]: **Stable**
Trend magnitude [2.3.5]: **Not applicable**
Trend period [2.3.6]: **1994-2006**
Reasons for reported trend [2.3.7]: **Not applicable**

Saltmarsh is rapidly eroding on the south and parts of the east coasts, due mainly to coastal squeeze. The process of loss usually results in a disproportionate loss of Atlantic saltmeadow habitat (H1330 habitat) with some areas of saltmarsh reverting to pioneer marsh (H1310 habitat). This has buffered the loss of H1330 habitat on these coasts, meaning that gaps in range have not yet occurred.

The development and spread of *Spartina anglica* has had most impact on the pioneer communities of saltmarsh, i.e. on the H1310 habitat. Although *S. anglica* can grow successfully lower in the tidal frame than can the pioneer saltmarsh species that make up the H1310 habitat, it does also grow in the same section of the tidal frame as this habitat. *S. anglica* has not penetrated far into Scotland, so this impact is limited there. Even where *S. anglica* has been most invasive, it has not completely eliminated other pioneer vegetation. Therefore, this impact has not created gaps in the range of the H1310 habitat.

The broad range of H1310 is considered to have been stable since 1994.

2.3 Favourable reference range [2.5.1]

Favourable reference range: **3,514 km^2**

Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, the current surface area, 3,514 km^2, has been set as the favourable reference area. Reasons for this are discussed below.

This habitat has a wide range, and is present on coasts all around the UK. Gaps in range shown on maps 2.1.1 and 2.1.2 are primarily where physiographic features are unsuitable for pioneer saltmarsh (i.e. predominantly cliffed coasts or high energy open coasts). Estuaries that support pioneer saltmarsh are widely distributed around the UK coast. Pioneer saltmarsh can also be found on the open coast where conditions are suitable, e.g. the presence of a barrier beach allows sediment to accumulate to a level where halophytic vegetation can colonise.

The range of saltmarsh habitats has varied in the past and it may well have been present in historic times on more extensive areas of land below 5 m. Reclamation, though, affects estuary processes and often results in the accretion of intertidal sediment on which some new saltmarsh can develop. As a consequence there can still be saltmarsh present in areas where large past losses have occurred, although to seaward of the original distribution. As a result, gaps have not yet occurred in the range of the H1310 habitat from this cause.

Despite the impacts of past coastal squeeze and land claim, H1310 is considered to occupy most of it potential natural range. As the range has remained stable since 1994, the current range is considered to be equal to the favourable reference range.

There is nonetheless a concern that, although the habitat is widespread around the UK coast and has little geographical variation, H1310 is a scarce habitat that is under pressure from a number of adverse impacts and could be easily lost from some parts of its range – especially on the south and east coasts.

2.4 Conclusions on range

Conclusion[2.6.i]: **Favourable**

The range of H1310 has remained stable since 1994 and is extensive enough to ensure the long-term viability of the habitat. The current range is equal to the favourable natural range despite substantial losses in extent in some areas. There is a concern that, due to the linear nature of the habitat and its scarcity, it could be lost from some parts of its range.

3. Area [2.4]

3.1 Current area

Total UK extent [2.4.1]: **23.7km^2**
Date of estimation [2.4.2]: **May 2007**
Method [2.4.3]: **3 = ground based survey**
Quality of data [2.4.4]: **Moderate**

Table 3.1.1 provides information on the area of H1310 in the UK. Comprehensive extent data for England, Scotland and Wales are available from the Saltmarsh Survey of Great Britain (1981-1989). These data are the best available but may be inaccurate due to their age and the continuing loss of saltmarsh due to coastal squeeze. The Saltmarsh Database holds information on community 2a *Salicornia/Suaeda* saltmarsh which is synonymous with NVC communities SM7, SM8 and SM9. On most sites where it occurs, SM7 only covers small areas. No information is held on NVC community SM27 but this community is an ephemeral vegetation type and generally covers relatively small areas. The area figure for Northern Ireland was estimated by Alastair Church, EHS, in 2007.

Table 3.1.1 Area of H1310 in the UK

	Area (ha)	Method [2.4.3]	Quality of data [2.4.4]
England	<1620	3	Moderate
Scotland	<360	3	Moderate
Wales	<380	3	Moderate
Northern Ireland	10	1	Moderate
Total UK extent [2.4.1]	<2,370	3	Moderate

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.
Quality of habitat surface area data: 'Good' e.g. based on extensive surveys; 'Moderate' e.g. based on partial data with some extrapolation; 'Poor' e.g. based on very incomplete data or on expert judgement

3.2 Trend in area since c.1994

Trend in area [2.4.5]: **Decreasing**
Trend magnitude [2.4.6]: **<1%**
Trend period [2.4.7]: **1973-1998**
Reasons for reported trend [2.4.8]: **3 – Direct human influence**
4 – Indirect anthropogenic or zoogenic influence
5 – Natural processes

There has not been a UK wide assessment of change in area, but there are a number of specific studies in England and Wales that demonstrate the trends. In Essex and north Kent, for example, evaluation of erosion and vegetation change using air photos and survey data from 1973 to 1988 demonstrated losses from 10% to 44% of saltmarsh area over that period (Burd 1992). This study also showed that there was a change in the structure of the marsh vegetation from upper saltmarsh to lower saltmarsh types (i.e. in part, from H1330 habitat to H1310 habitat). Further work in part of this area (Cooper, Cooper & Burd 2001) has confirmed the ongoing loss of saltmarsh habitat in Essex since 1988. Between 1973 and 1998, over 1000 ha of saltmarsh in Essex was lost to coastal squeeze and development. This pattern is repeated on the south coast of England (Baily & Pearson 2001). Drawing on this data, changes in saltmarsh habitat area from seven English estuaries in Suffolk/North Kent from 1973-1997/8 are summarised below.

These figures are indicative of the changes in area across parts of England. These recent losses are mostly a result of coastal squeeze where saltmarsh is eroding because it is trapped between rising sea levels and hard sea walls. As a result it is not able to adjust to the new circumstances, especially if there is not enough sediment available for the mud surface to keep up with the continuing sea levels rise.

Table 4.2.1 Changes in saltmarsh habitat area from seven English estuaries in Suffolk/N Kent from 1973-1997/8 are summarised below. The rates of change (expressed as true annual rate of loss) are somewhat in excess of 1% per year for the two periods covered (1973-1988 and 1998-1997/8) and overall (1973-1997/8). All areas are shown in hectares.

Area at start (ha)	Area at end (ha)	Period (number of years)	Annual rate of loss for that period (%)
3853	3250	1973-88 (15)	1.13
3250	2879	1988-1997/8 (9.5)	1.27
3853	2879	1973-1997/8 (1.18)	1.18

Overall, therefore, there has been substantial loss of all types of saltmarsh in England due to land claim and coastal squeeze, but with the H1310 pioneer saltmarsh suffering less net loss than H1330 Atlantic salt meadow. However, while such extreme losses as a result of coastal squeeze may not be occurring in Scotland, the losses in England mean that there is a disproportionate loss of the habitat in a core part of its range.

There has been a decline in area since 1994, with trends over 1% per year in south east England. While such extreme losses as a result of coastal squeeze may not be occurring in Scotland, the losses in England mean that there is a disproportionate loss of the habitat across its range of ecological variation. The overall area has declined since 1994 but at rates averaging less than 1% per year.

3.3 Favourable reference area [2.5.2]

Favourable reference area [2.5.2]: **Unknown** (area data insufficient)

Part of the concern about long-term viability is driven by the scale of habitat decline, which has been extensive as a result of past reclamation and development and is ongoing as a result of coastal squeeze. However, H1310 is less affected as it is a pioneer habitat found on the lower fringe of the saltmarsh. Loss of H1310 saltmarsh between 1800 and 1950 has been extensive as a result of land claims for agriculture and other developments (Allen & Pye 1992). In The Wash, for example, a total of 29,000 ha has been reclaimed, of which 3000 ha is known to have been land claimed during the 20th century (Doody 2001). Similarly, in Scotland, some 50% of the former intertidal area of the Forth estuary has been subject to claim over the last 400 years (May and Hansom 2003). [This latter figure may also include some intertidal mudflat as well as saltmarsh, although these are functionally linked within an estuary system.] However, due to the fact that reclamation affects estuary processes and often results in the accretion of intertidal sediment on which saltmarsh can develop, there can still be saltmarsh present in areas where large past losses have occurred, although to seaward of the original distribution. Furthermore, land claim, at least in the short to medium term, tends to replace H1330 Atlantic salt meadow with the H1310 habitat. Although this buffers the impact of land claim losses, replacement is rarely on a 1:1 basis.

Another concern is the fact that this habitat, although widespread across UK coasts, is relatively scarce, with only 2370 ha for c. 12500 km of UK coastline. Being a coastal habitat, H1310 is especially vulnerable to edge effect and has an increased vulnerability to ‘catastrophic’ events.

Potential area would be limited to land approximately between the 1 and 5 m elevation on the coastal flood plain. Although there have been attempts in the past to use sediment trapping by use of ‘sedimentation fences’ (known as Polders in The Netherlands) to create saltmarsh, this relies on the presence of adequate sediment, and is only suitable as a small-scale method in accreting systems (Colenutt 2001).

Furthermore it has been estimated that approximately 100 ha of saltmarsh needs to be created annually to keep pace with losses to coastal squeeze, with an additional amount of 40 ha per annum to account for losses since the Habitats Directive came into force (UK BAP 1999). Since the publication of the *Habitat Action Plan for Coastal Saltmarsh*, however, the amount of habitat created has not met those annual targets, with the exception of 2006 when a large managed realignment in the Humber was implemented. Between 1994 and 2007, there was 1028 ha of realignment in the UK. However, 110 ha of this at Wallasea, was compensation for intertidal area that had been developed on at Lappel Bank/Fagbury Flats, so the real figure would be 918 ha when the targets were of 140 ha per annum over eight years, thus 1120 ha. Despite these realignments, recreation is 200 ha short of the Habitat Action Plan (HAP) target in terms of overall realignment area. There are also issues that not all of the areas will become saltmarsh, some will remain as mudflat, as well as quality aspects – the Alkborough site for example will only support upper estuary saltmarsh of a different type of saltmarsh habitat than was lost in Essex. Also there is no distinction between Atlantic saltmeadow and Salicornia in these figures.

This suggests that the current range is less than 10% below the favourable reference range.

3.4 Conclusions on area covered by habitat

Conclusion[2.6.ii]: **Unfavourable – Inadequate and deteriorating**.

The area of this habitat has declined greatly over the last 100 years due to human actions. This has compounded the impacts of previous land claims and changes in response to sea level rise and sediment availability. Data from south-east England show the rate of loss for saltmarsh habitat from 1973-1997/8 in this area exceeded 1% per year. Although this rate of recent loss is probably greater than on other stretches of the UK coast, this region holds a substantial part (70%) of the national total. However, due to its pioneer nature, H1310 has better coped with recent losses in saltmarsh area. The current area is considered to be less than 10% below the favourable reference area.

4. Specific structures and functions (including typical species)

4.1 Main pressures 2.4.10
These and other adverse factors affecting the H1310 habitat are covered in the *Habitat Action Plan for Coastal Saltmarsh* (UKBAP website). The main pressures affecting H1310 are listed below. The related EC codes are shown in brackets.

- Land claim (**802 reclamation of land from sea, estuary or marsh**)

Large scale saltmarsh land claim schemes for agriculture are now rare. Piecemeal smaller scale land claim for industry, port facilities, transport infrastructure and waste disposal is still comparatively common, and marina development on saltmarsh sites occurs occasionally. Such developments usually affect the more botanically diverse upper marsh and landward transition zones.

- Erosion and 'coastal squeeze' (**900 erosion, 930 submersion**)

Erosion of the seaward edge of saltmarshes occurs widely in the high energy locations of the larger estuaries as a result of coastal processes. There is evidence that this process is exacerbated both by the isostatic tilting of Britain towards the south-east, and by climatic change leading to a relative rise in sea level and to increased storminess. Many saltmarshes are being 'squeezed' between an eroding seaward edge and fixed flood defence walls. The erosional process is exacerbated in some locations by a reduced supply of sediment. 'Coastal squeeze' is most pronounced in south-east England, where, for example, it is estimated that 20% of the saltmarsh resource in Kent and Essex was lost between 1973 and 1988. The best available information suggests that saltmarshes in the UK are being lost to erosion at a rate of 100 ha a year. In more western and northern regions, there is recent evidence of a trend towards net sea level rise which may be causing saltmarsh erosion, although the rates of loss are not known. Accretion and development of saltmarsh is occurring on parts of the British coastline, notably in north-west England where sediments are comparatively coarse and isostatic uplift largely negates sea level rise. However, this accretion is not sufficient to offset the national net loss of saltmarsh.

- Sediment dynamics (**851 modification of marine currents, 871 sea defence or coast protection works**)

Local sediment budgets may be affected by coast protection works, or by changes in estuary morphology caused by land claim, dredging of shipping channels and the impacts of flood defence works over the years.

- Cord grass *Spartina anglica* (**954 invasion by a species, 971 competition**)

The small cordgrass, *Spartina maritima*, is the only species of cordgrass native to Great Britain. The smooth cordgrass, *S. alterniflora*, is a naturalised alien that was introduced to the UK in the 1820s. This introduction led to its subsequent crossing with *S. maritima* resulting in both a sterile hybrid, Townsend's cordgrass *S.* x *townsendii*, and a fertile hybrid, common cordgrass *S. anglica*. The latter readily colonises mudflats and has spread around the coast. It has also been extensively planted to aid stabilisation of mudflats and as a prelude to land-claim. Common cordgrass often produces extensive monoculture swards of much less intrinsic value to wildlife, and in many areas is considered to be a threat to bird feeding grounds on mudflats. As a result, attempts have been made to control it at several locations, although in some areas it is undergoing dieback for reasons not fully understood.

The development and spread of *Spartina anglica* has had most impact on the pioneer communities of saltmarsh, i.e. on the H1310 habitat. Although *S. anglica* can grow successfully lower in the tidal frame than can the pioneer saltmarsh species that make up the H1310 habitat, it does also grow in the same section of the tidal frame as this habitat. Even where *S. anglica* has been most invasive though, although it will undoubtedly have decreased the area of H1310 habitat, it has not completely eliminated this pioneer vegetation. *S. anglica* has not penetrated far into Scotland, so this impact is more limited there.

- Other human influences (**420 Discharges, 701 water pollution, 703 soil pollution, 730 Military manoeuvres, 810 Drainage, 840 Flooding**)

Saltmarshes are affected by a range of other human influences including waste tipping, pollution, drowning by barrage construction, and military activity. Turf cutting is a traditional activity in some areas. Oil pollution can potentially destroy saltmarsh vegetation and whilst it usually recovers, sediment may be lost during the period of die-back. The effects of recreational pressure are not well understood but may be locally significant. Agricultural improvement (re-seeding and draining) has affected the upper edge and transition zones of some saltmarshes in the past and may still occur on a small scale. Eutrophication due to sewage effluent and agricultural fertiliser run-off has caused local problems of algal growth on saltmarshes. These activities cause different scales and intensity of pressure, but they often combine to cause cumulative effects, particularly where land-claim occurs.

- Air pollution (**702 air pollution**)

Based on an assessment of the exceedence of relevant critical loads (see Technical note III), air pollution is not considered to be a potentially significant pressure to the structure and function of this habitat.

4.2 Current condition

4.2.1 Common Standards Monitoring (CSM) condition assessments

Condition assessments based on CSM (see http://www.jncc.gov.uk/page-2199) provide a means to assess the structure and functioning of H1310 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- Physical structure: creeks and pans.
- Vegetation structure: zonation of vegetation.
- Vegetation structure: sward height.
- Vegetation composition: characteristic species (including transitions to other habitats).
- Vegetation composition: negative indicator species (*S. anglica*).
- Other negative indicators.

Changes to creeks and salt pans can act as identifiable indicators of erosion, in the absence of detailed topographical monitoring. Enlargement and internal dissection of creeks can indicate erosion. Saltmarsh dynamics are closely linked to the physical factors operating, especially the role of sediment erosion/accretion. Many systems are still adjusting to past reclamation, so ongoing changes should be expected. A study for Ministry of Agriculture, Food and Fisheries (MAFF) in the 1990's (Pye & French 1993) showed that there were regional differences in lateral and vertical accretion since the 1960's/1970's, and that systems can change from an accreting system to an eroding system, depending on factors such as wave climate and wind energy.

Vegetation patterns and composition are important aspects when assessing condition, as they reflect any major changes in saltmarsh dynamics. This habitat is made up of a series of zones dominated by species that can tolerate different levels of tidal inundation. Changes in dominance of species able to withstand different levels of inundation can indicate changes in condition. Replacement of higher zones with lower zones (a shift from Atlantic salt meadow to pioneer marsh) can indicate a lowering of the marsh surface, frequently a result of coastal squeeze. Sward height and characteristic species are less important for assessing condition of pioneer marsh than they are of Atlantic salt meadow – pioneer marsh is not affected by grazing or mowing, and the communities have very few constituent species. However, *S. anglica*, a key negative indicator species, has much more impact on the *Salicornia* and *Sueda* dominated pioneer communities (i.e. the H1310 habitat) than it does on the Atlantic salt meadows.

Saltmarshes are part of wider coastal and estuarine systems, and play a key role in the storing and release of sediment and nutrient cycling (Boorman 2003). In addition they provide a vital natural role in flood risk management as well as nursery areas for fish and other aquatic species (Colclough *et al.* 2005).

The sites selected as SACs are for the most part the largest examples of this habitat type, representing the range of variation of the habitat, with good structure and function, and which support a well-developed zonation of plant communities within the saltmarsh. Some have transitions to other high-quality habitat and may represent the most complete sequences of saltmarsh vegetation zones and transitions to other habitats, such as sand dunes or terrestrial/wetland habitats. Note that three of the larger sites (Dee, Severn and Humber) are still possible SACs.

For the H1310 habitat, the main pressure adversely affecting the H1310 pioneer habitat's structure and function is, especially in England, the presence of the negative indicator *S. anglica*.

SAC condition assessments

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H1310. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 30% of the area and 45% of the number of assessments was unfavourable; and
- at least 26% of the total UK habitat area was in unfavourable condition.

Table 4.2.1 CSM condition assessment results for UK SACs supporting H1310. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Condition	Condition sub-categories	Area (ha)	Number of site features
Unfavourable	Declining	455	2
	No change		
	Unclassified	100	1
	Recovering	59	2
	Total	614	5
	% of all assessments	***30%***	***45%***
	% of total UK resource	***26%***	***Unknown***
Favourable	Maintained	09	1
	Recovered		
	Unclassified	1,440	5
	Total	1,448	6
	% of all assessments	***70%***	***55%***
	% of total UK resource	***61%***	***unknown***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC).
3. Only assessments made for qualifying interest features on SAC have been included in this analysis.
4. Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

Table 4.2.2 CSM condition assessment results for UK Sites of Special Scientific Interest (SSSI)/Areas of Special Scientific Interest (ASSIs) that were judged to be either strongly or weakly indicative of the condition of H1310 on SSSI/ASSIs. See notes below table and Technical note II for further details

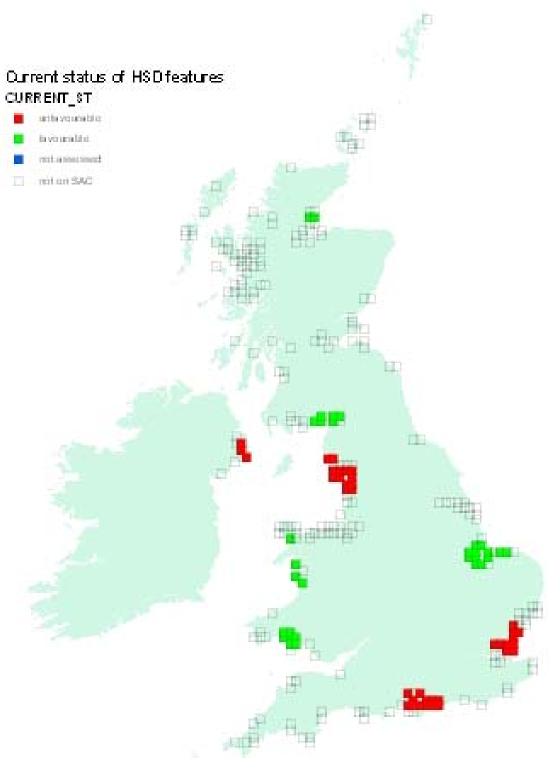
Condition	**Condition sub-categories**	**Number of assessments**	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Unfavourable	Declining	3	8
	No change	2	8
	Unclassified	2	2
	Recovering	5	2
	Total	12	20
	% of all assessments	***36%***	***33%***
Favourable	Maintained		39
	Recovered		
	Unclassified	21	1
	Total	21	40
	% of all assessments	***64%***	***67%***

Notes
1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006.

SSSI/ASSI condition assessments

Table 4.2.2 and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 36% of strongly indicative assessments and 33% weakly indicative assessments were unfavourable.

<table>
<tr><td colspan="3">Current Condition of H1310 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)</td></tr>
<tr><td>Map 4.2.1 SAC assessments</td><td>Map 4.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs</td><td>Map 4.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs</td></tr>
<tr><td>
</td><td>
</td><td>
</td></tr>
<tr><td>Key
<u>Red = unfavourable</u>, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable
<u>Green = favourable</u>, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features
<u>Blue = SAC not assessed</u>, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
<u>Transparent = SAC feature not present</u>, i.e. the square does not contain any SAC features of this habitat type</td><td colspan="2">Key*
<u>Green</u> – 80 – 100% of assessed features on 10km square are favourable
<u>Yellow</u> - 50 – 80% of assessed features on 10km square are favourable
<u>Orange</u> - 20 – 50% of assessed features on 10km square are favourable
<u>Red</u> - 0 – 20% of assessed features on 10km square are favourable
*This is the same key as was used for JNCC CSM Report 2006</td></tr>
</table>

4.3 Typical species

Typical species[2.5.3]: **None used**

Typical species assessment[2.5.4]: **Not applicable**

Table 4.3.1 Trends and faithfulness of selected typical species for H1310

Typical species [2.5.3]	Faithfulness to habitat H1310 (based on analysis of NVC synoptic tables)	Trend over last 25 years from BSBI atlas – based on change in 10 km square occupancy across UK (see http://www.jncc.gov.uk/page-3254)
Suaeda maritima	Very low	No significant change
Spartina anglica	Very low	Significant increase, but <25% in 25 years
Aster tripolium (unrayed)	Very low	Significant increase, but <25% in 25 years
Aster tripolium (unrayed)	Very low	Significant increase, but <25% in 25 years
Puccinelia maritima	Very low	Significant increase, but <25% in 25 years
Salicornia agg.	Low	No data
Halimione portaculoides	Very low	No data
Sarcocornia perennis	No information	No significant change
Salicornia spp.	No information	Increase
Sagina maritima	No information	Significant increase, but <25% in 25 years
Sagina nodosa	No information	Significant increase, but <25% in 25 years
Plantago coronopus	No information	Significant increase, but <25% in 25 years
Bupleurum tenuissimum	No information	No significant change
Centaurium littorale	No information	No significant change
Cochlearia danica	No information	Significant increase, but <25% in 25 years

SM7, SM8 and SM9 are all pioneer communities with very few species. Each is characterised by the dominance of a single species (or species aggregate); SM7 by *Sarcocornia perennis*, SM8 by *Salicornia* spp., and SM9 by *Suaeda maritima*. SM27 is a more miscellaneous collection of plants. It is composed of small stands of ephemeral vegetation, with an open cover of annuals and short-lived perennials. There is a large element of chance in the floristic composition, but it will often include *Sagina maritima, S. nodosa*, and *Plantago coronopus*. In the south east it may include *Bupleurum tenuissimum* and in the north *Centaurium littorale*. *Cochlearia danica* may also occur here (Rodwell 2000).

None of these species are particularly faithful to the habitat or to the main related saltmarsh community type (SD16) within the NVC, so available trend data at the UK-level is not particularly meaningful and has not been utilised here.

4.4 Conclusions on specific structures and functions (including typical species)

Conclusion[2.6.iii]: **Unfavourable – Bad and deteriorating**

The EC Guidance states that where “more than 25% of the area of the habitat is unfavourable as regards its specific structures and functions”, the conclusion should be Unfavourable – Bad. In the UK this was generally taken to mean that more than 25% of the habitat area in unfavourable condition.

CSM site condition assessments for SACs and SSSI/ASSIs show that a large part of this habitat is classed as in unfavourable condition. The value for assessed SACs is 30% in area (26% of the UK resource) and 45% in number of sites, whilst for relevant categories on SSSI/ASSIs it is 36%. Nearly 19% of the total UK resource is classed as declining, compared to the 59 ha (2.5% of the total UK resource) recovering area. Taken together, these data clearly demonstrate that more than 25% of the habitat is unfavourable, that the necessary structures and functions for the habitat are not in place, and that significant deteriorations/pressures exist.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

- Protection within designated sites

Around 87% of the resource of H1310 lies within SACs with management measures specifically aimed at maintaining and enhancing the features for which they are designated, and to address some of the pressures listed within section 4.1 and the future threats listed in section 5.1.2. A significant proportion of the resource of this habitat also lies within the SSSI/ASSI series where similar management measures are in place.

- UK BAP

The habitat is covered by the *Coastal sand dunes action plan* under the UK Biodiversity Action Plan (see http://www.ukbap.org.uk), as well as under country and local biodiversity action plans and strategies, with targets to maintain, improve, restore and expand the resource.

The main method of re-creating saltmarsh would rely on the flooding of low-lying land by tidal water; some of it previously reclaimed saltmarsh. To re-create or restore habitat area would require the right combination of topography, sediments and intertidal flooding. The areas with the highest potential are low-lying parts of the coastal flood plain, these could be equivalent to the land that has been mapped by the Environment Agency at risk of being flooded 1 in 200 year flooding, and are approximately similar to the 5 m contour. A potential area could be modelled by identifying coastal land of suitable elevation, as has been done in the Living with the sea CHaMPs studies (English Nature 2002). However, where the estuary system is more constrained by steeply rising ground (e.g. Ria type estuaries in Devon or Cornwall) the transgression of habitat is more limited. In these latter cases, saltmarsh development can only keep pace with sea level rise if there is adequate sediment in the system to allow vertical accretion.

Much of the potential area has been land claimed and now lies behind artificial flood banks that reduce the risk of flooding. Some of these flood banks protect built infrastructure such as power stations and industry. Any managed realignment would need to take account of this and also the dynamics of the estuary: therefore potential area of pioneer saltmarsh may be less than the extent of the flood plain overall. It has been estimated that approximately 100 ha of saltmarsh needs to be created annually to keep pace with losses to coastal squeeze, with an additional amount to account for losses since the Habitats Directive came into force (UK BAP 1999). Since the publication of the Habitat Action Plan for Coastal Saltmarsh, however, the amount of habitat created has not met those annual targets, with the exception of 2006 when a large managed realignment in The Humber was implemented.

A study to evaluate success of de-embankment has shown that of 48 accidental or deliberate breaches in the UK since 1897, only 2007 ha of habitat were flooded. (Wolters *et al.* 2005). Studies from monitoring of one of the first managed realignment projects in England indicate that the rate of accretion determines the rate of habitat development (Boorman 2003). Although ‘warping up’ by depositing sediment onto realignment areas, can help to promote this process, it can also generate other impacts such as smothering, pollution or affecting sediment pathways (Nottage & Robertson 2005).

Managed and unplanned realignments, and removal of coastal flood defence banks, creates space for new intertidal areas – both mudflat and saltmarsh. For saltmarsh, the pioneer communities will be first to respond to sufficient sediment being deposited to trigger vegetation growth. Where *S. anglica* is present within a process cell, it will usually be the first to establish, restricting the space available for the H1310 habitat to establish and expand. However, experience shows that on most sites, *S. anglica* does not completely exclude the other pioneer communities (i.e. the H1310 habitat).

5.1.2 Main future threats[2.4.11]

The most obvious major future threats to H1310 are listed below, several of which are referred to in Section 4.1. The related EC codes are shown in brackets.

- Land claim (**802 reclamation of land from sea, estuary or marsh**)
- Erosion and 'coastal squeeze' (**900 erosion, 930 submersion**)
- Sediment dynamics (**851 modification of marine currents, 871 sea defence or coast protection works**)
- Cord grass *Spartina anglica* (**954 invasion by a species, 971 competition**)
- Other human influences (**420 Discharges, 701 water pollution, 703 soil pollution, 730 Military manoeuvres, 810 Drainage, 840 Flooding**)
- Climate change (**900 erosion, 930 submersion, 950 Biocenotic evolution**)

Based on the literature review (Technical note IV) climate change is considered a major threat to the future condition of this habitat especially in the long term. However, there is a high degree of uncertainty in defining future climate threats on habitats and species due to uncertainty in: future greenhouse gas emissions; the consequential changes in climatic features (for instance temperature, precipitation CO_2 concentrations); the responses of habitats and species to these changes (for instance location, phenology, community structure) and the role of other socio-economic drivers of environmental change. The scale of change in habitats and species as a result of climate change will vary across ecosystems. Small changes in the climate are more likely to have a substantial impact on habitats and species which exist within a narrow range of environmental conditions. The future impacts of climate change on UK biodiversity will be exacerbated when coupled with other drivers of environmental change.

- Air pollution (**702 air pollution**)

Based on an assessment of the exceedence of relevant critical loads (see Technical note III), air pollution is not considered to be a potentially significant threat to the future condition of this habitat.

5.2 Future condition (as regards range, area covered and specific structures and functions)

5.2.1 CSM condition assessments

The CSM condition assessments reported in Sections 4.2.1-2 provide a basis to predict the potential future condition of H1310 in the UK. This involved treating all assessments currently identified as either favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1. There are a number of caveats to this approach, which are set out beneath this table.

Studies in selected areas of English estuaries have indicated that if flood defences are maintained in their current locations, coastal squeeze will continue and significant areas of saltmarsh will be lost from many areas by 2050 (Royal Haskoning 2006).

In order to compensate for extensive past, and continuing, losses of saltmarsh in Natura 2000 sites on the south and east coasts of England, managed realignment of coastal flood defences has begun in a few estuaries. This is likely to increase in the future, as is the removal of maintenance from some defences leading, over time, to their natural breaching. This should provide opportunities for H1310 pioneer saltmarsh to spread. However, where *S. anglica* is present in the relevant process cell, it will usually be the first to establish, restricting the space available for the H1310 habitat to establish and expand. However, experience shows that on most sites, *S. anglica* does not completely exclude the other pioneer communities (i.e. the H1310 habitat). See the following study on the impact of managed realignment schemes – http://www.uea.ac.uk/~e130/Saltmarsh.htm

Currently, there appears little prospect that realignments of coastal flood defences will occur soon enough, or on a large enough scale, to compensate for recent past losses or for continuing losses caused by coastal squeeze. The CSM SAC assessments reflect this, showing that the status of this habitat is not likely to change significantly in the near future. None of the area assessed is classified as recovering and so the habitat looks set to remain unfavourable. The CSM site condition assessments for SSSI/ASSIs back up this judgment, with no change to the proportion of this habitat classified as unfavourable.

SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H1310 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 73% of the area and 73% of the number of assessments fall within the future-favourable category; and
- at least 64% of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H1310 based on current CSM condition assessments. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Future condition	Present condition	Area (ha)	Number of site features
Future-unfavourable	Unfavourable declining	455	2
	Unfavourable no change		
	Unfavourable unclassified	100	1
	Total	555	3
	% of assessments	***27%***	***27%***
	% of total UK extent	***23%***	***Unknown***
Future-favourable	Favourable maintained	09	1
	Favourable recovered		
	Unfavourable recovering	59	2
	Favourable unclassified	1,440	5
	Total	1,507	8
	% of assessments	***73%***	***73%***
	% of total extent	***64%***	***Unknown***

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.1. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

SSSI/ASSI condition assessments

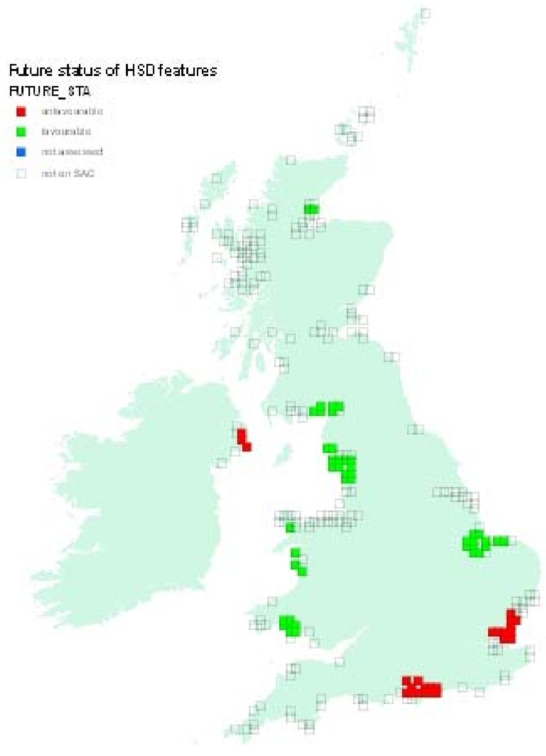
Table 5.2.2 and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H1310 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 79% of strongly indicative assessments and 70% weakly indicative assessments fall within the future-favourable category.

Table 5.2.2 Predicted future condition of H1310 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical note II for further details

Future condition	**Present condition**	**Number of assessments**	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Future-unfavourable	Unfavourable declining	3	8
	Unfavourable no change	2	8
	Unfavourable unclassified	2	2
	Total	7	18
	% of assessments	***21%***	***30%***
Future-favourable	Favourable maintained		39
	Favourable recovered		
	Unfavourable recovering	5	2
	Favourable unclassified	21	1
	Total	26	42
	% of assessments	***79%***	***70%***

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.2. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

<table>
<tr><th colspan="3">Predicted Future Condition of H1310 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)</th></tr>
<tr><td>Map 5.2.1 SAC assessments</td><td>Map 5.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs</td><td>Map 5.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs</td></tr>
<tr><td>
</td><td>
</td><td>
</td></tr>
<tr><td>Key
<u>Red = future-unfavourable</u>, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable
<u>Green = future-favourable</u>, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable
<u>Blue = SAC not assessed</u>, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
<u>Transparent = SAC feature not present</u>, i.e. the square does not contain any SAC features of this habitat type</td><td colspan="2">Key*
<u>Green</u> – 80 – 100% of assessed features on 10km square are favourable
<u>Yellow</u> - 50 – 80% of assessed features on 10km square are favourable
<u>Orange</u> - 20 – 50% of assessed features on 10km square are favourable
<u>Red</u> - 0 – 20% of assessed features on 10km square are favourable
*This is the same key as was used for JNCC CSM Report 2006</td></tr>
</table>

5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

Conclusion[2.6.iv]: Unfavourable – Bad and deteriorating

The EC Guidance states that where "habitat prospects are bad, with severe impacts from threats expected and long-term viability not assured", the judgement should be Unfavourable – Bad. In the UK, this was generally taken to mean that habitat range and/or area are in decline, and/or less than 75% of the habitat area is likely to be in favourable condition in 12-15 years.

CSM site condition assessments for SACs suggest that a large part of this habitat may be in unfavourable condition: 27% of SAC area, representing 23% of the total UK resource. SSSI results show that 21% of strongly indicative assessments and 32% weakly indicative assessments remain unfavourable in the foreseeable future. It should be noted that a number of positive conservation measures – notably the agreed BAP target for creating of 350 ha of saltmarsh per annum – have been put into place to improve the status of this habitat, although the BAP habitat also includes H1320, H1330 and H1420. However, it is considered that recreation will take time for the new intertidal habitat to be colonised and for the habitat to reach maturity. Furthermore, it may not compensate loss of ecological variation as some components of saltmarsh may fail to develop and as northerly sites will differ from more southerly ones. Given progress already made and some additional recovery once further conservation measures are put into place, the expectation is that more than 25% of the habitat will be in unfavourable condition in the next 10-15 years. Nonetheless, the area of H1310 is expected to continue to decline because (i) there are clear doubts whether coastal adaptation will be able to occur fast enough to allow the H1310 habitat to maintain itself in the face of increasing pressures from climate change, largely expressed through coastal squeeze, and because (ii) of the replacement of *Salicornia* by the invasive, non-native species, *Spartina anglica* which remains an effective competitor for the space where the H1310 habitat should occur. This decline in area, compounded by the unsatisfactory condition of the existing habitat suggests an assessment of Unfavourable – Bad for this section.

6. Overall conclusions and judgements on conservation status

Conclusion[2.6]: Unfavourable – Bad and deteriorating

On the basis of the structure and function and future prospects assessments, the overall conclusion for this habitat feature is Unfavourable –Bad and deteriorating.

Table 6.1 Summary of overall conclusions and judgements

Parameter	Judgement	Grounds for Judgement	Confidence in judgement*
Range	Favourable	Current range is stable and not less than the favourable reference range.	2
Area covered by habitat type within range	Unfavourable – Inadequate and deteriorating	Current extent is below the favourable reference area, but not by more than 10%.	2
Specific structures and functions (including typical specie[s])	Unfavourable – Bad and deteriorating	More than 25% of the habitat area is considered to be unfavourable as regards its specific structures and functions. Significantly more of the resource in unfavourable condition is declining than improving.	2
Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Bad and deteriorating	Habitat prospects over the next 12-15 years is considered to be bad, with severe impact from threats expected and long term viability not assured. Further measures are required to address threats to future extent and structure and function for the overall UK resource.	2
Overall assessment of conservation status	Unfavourable – Bad and deteriorating	On the basis of the structure and function and future prospects assessments, the overall conclusion for this habitat feature is Unfavourable –Bad and deteriorating.	2

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

7. Annexed material (including information sources used 2.2)

7.1 References

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7.2 Further information on CSM data as presented in Sections 4.2 and 5.2

Table 7.2.1 Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

Data	Value
Number of SACs supporting feature (a)	11
Number of SACs with CSM assessments (b)	11
% of SACs assessed (b/a)	100
Extent of feature in the UK – hectares (c)	2,370
Extent of feature on SACs – hectares (d)	2,062
Extent of features assessed – hectares (e)	2,062
% of total UK hectarage on SACs (d/c)	87
% of SAC total hectarage that has been assessed (e/d)	100
% of total UK hectarage that has been assessed (e/c)	87

Notes
1. Extent of features on SACs (d) includes only those features that have been submitted on the official Natura 2000 data form as qualifying features. This figure is based on the habitat extent figures presented on standard Natura 2000 data forms.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC)

Table 7.2.2 Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

Status	Number of squares	Proportion of all squares
Current – Unfavourable (red)	38	14%
Current – Favourable (green)	31	11%
On SAC but not assessed (blue)	0	0%
Not on SAC (transparent)	205	75%
Total Number of 10km squares (any colour)	274	100%
Future – Unfavourable (red)	25	9%
Future – Favourable (green)	44	16%